



TRMM Flight Operations Monthly Status Review (MSR)

August 4, 2003



FOT Subsystem Overview

- Operations Status
 - Flight Ops Summary - Lou Kurzmiller
 - Electrical/Thermal - Dave Sepan
 - RCS - Dave Sepan
 - ACS - Dave Sepan
 - Deployables - Joe Kowalski
 - FDS - Joe Kowalski
 - Power - Nega Berhanu
 - C&DH & RF/Comm - Nega Berhanu
 - LIS - Nega Berhanu
 - CERES & VIRS – David Sepan
 - TMI - Dave Sepan
 - PR - Joe Kowalski
 - Ground System – Joe Kowalski
 - Upcoming Activities – Joe Kowalski



Flight Operations Summary

- Supported 503 SN events in July
 - 1 Yaw Maneuver; now +X as of 04 July 03
 - 2 Delta-V Maneuvers; #439 & #440
- 1 Anomaly Rpt, 3 Event Reports & 1 Late Acq
 - AR #99: LIS Instru; Secondary H/W Heater on, (25 July)
 - ER #308: MOC; Data Dropout due offsite Security Scan (11 July)
 - ER #309: MOC Equip; String 1 TNIF2 failure (18 July)
 - ER #310: WSGT; Data Dropout due maintenance at WSGT (25 July)
 - Late Acq on 07 July



Flight Operations Summary

- Notable Events:
 - Continued support of AutoFDS implementation effort
 - Supported Power Subsystem switch to VT6 effort
 - Supported Mission EOL contingency checkout
- Lost services of FOT Lead Eng
- FOT Concerns:
 - Retain FOT talent/experience, sufficient to handle all tasks
 - Aging MOC equipment
 - Support new ground system initiatives (challenge vice concern)
 - Any potential s/c problem



Thermal / Electrical Subsystems

- The Thermal subsystem remains nominal
- The Electrical subsystem remains nominal



RCS Subsystem

- RCS performed 2 successful Delta-V maneuvers (#439 - #440)
 - Current fuel remaining is 206 kg by the mass flow method.
 - Current fuel remaining by the PVT method is 185 kg.
 - Current Precision Pressure Transducer level is down to 154.4 psia.
- RCS subsystem is in “blow down” mode and is no longer pressure regulated.
- The current EOL estimate at 402.5 km is Mid-2004 using 134 kg of fuel as a baseline for controlled re-entry.
- Upcoming Events
 - Continue to review and train with Delta-H procedure, EOL scripts, and the “one-shot” procedure.
 - Review all required steps for a 30+ minute Delta-V maneuver and test with the simulator.



ACS Subsystem

- ACS is performing nominally.
- New ACS System Tables 84 and 90 were loaded to the S/C on 03-198 (July 17th). Table 84 contains the new spacecraft mass of 2786 kg and new area of 12.16 m². Table 90 allows the transition to Earth Acquisition mode from Delta-H mode.



Deployables Subsystem

- -Y SA Sticking Anomaly On-going Work
 - Configure ACE for 15° in Safehold. (Do we want to do this?)
 - SunAcq configured back to 0° pitch in RAM and EEPROM remains at 15° pitch until the investigation is completed.
- Solar Array 55° Off-Set test
 - Configured +Y Solar Array for two orbits on 03-203 (July 22nd)



FDS Subsystem

- The FDS Subsystem remains nominal
- 03-198 (July 17th) ACS System Tables #84 (Ephemeris Model Coefficients) and #90 (Mode Configuration Data for Contingency) loaded to RAM



Power Subsystem

- The Power system was configured to VT 6 in order to recharge the battery from 03-182 (Tue., July 1st) to 03-190 (July 9th).
- Solar Array Offset Test
 - A 55 degree Solar Array Offset test was performed on 03-203 (July 22nd). The Beta Angle was approximately 54 degrees. For 2 orbits, the +Y Solar Array did track between -/+50 degrees with a 55 degree offset, the -Y Solar Array was Feathered at the time and the power system was configured to PPT mode. According to Anisa, we did meet the energy balance.
- No Open issues.



C&DH Subsystems

- UTCF/FS Status:
 - 2 UTCF Adjustments were performed on 03-190 (Wed., July 9th), 03-200 (Sat., July 19th).
 - » Current UTCF value is 31535996.784008 sec
 - A FS Adjustment was performed on 03-200 (Sat., July 19th).
 - » Current FS value is x'81A'.

No Open issues



RF Subsystem

- 1 Late Acquisition occurred during this report period.
 - GLA #143: Occurred on 03-189 (July 7th) during the 02:58z TDW/SA1 event. Acquisition was 1:06 min late. 1 GCMR was sent; No impact on data storage activities (CDS-30835).
- 1 RF-related Event Report since last MSR.
 - ER #310: Occurred on 03-206 (July 25th) during the 18:43z 171/SA1 event. Q-channel dropped lock @ 18:48:03 before completion of data storage activities. WSGT informed the MOC that they were experiencing maintenance issues and that NO spacecrafts were receiving data. The TDW/2016z event's AOS was scheduled for 2000z and a blind acquisition was performed. All data was recovered. (CDS-33330).
- Frequency offsets (monthly average)
 - Transponder #1 = - 22.906 Hz
 - Transponder #2 = + 114.692 Hz

No open issues



LIS Instrument

- 1 Routine MSFC real-time command request was performed on 03-198 (Thurs., July 17th) to reduce packet sequence errors.
- 03-206 (Fri., July 25th)
 - Secondary hardware heater switched to ON state (AR #99)
 - Notified John Hall, and he verified no instrument anomalies
 - TRMM was in SAA at the time of anomaly
 - LIS reset performed to configure instrument back to normal
 - No problems observed since
- No open issues



CERES/VIRS Instruments

- **CERES.**
 - Powered OFF.
- **VIRS**
 - VIRS continues to operate nominally.



PR/TMI Instruments

- No open issues with the PR instrument
- PRLNAANALYSIS performed on 03-199 (July 18th)
- No open issues with the TMI instrument



Ground System / Security

- TR3XT5 monitor was replaced on 03-183 (July 2nd) and again on 03-199 (July 18th).
- Remote security scan caused workstations on string 1 and 2 to freeze during an event 03-192 (July 11th). The data release had to be performed on string 3. The Mission Planning workstation on string 3 also froze. (Event Report #308)
- Trend1 Hard Drive on GTAS was replaced on 03-210 (July 29th). Contents of old drive copied to new drive.



Upcoming Activities

- 0-2 Months
 - Load new Evacuation Contingency configuration (Goto SunAcq).
 - » SC RTS
 - » SC TSM
 - » Reallocate VR space
 - Pitch 15° in SunAcq and Safehold or not?
 - Load new warmstart during Delta-V fix
 - » ACS TSM
 - » ACS RTS
 - Place remaining permanent table / patch changes into EEPROM
 - Support finalization of TRMM End of Life and Reentry Plan
 - Continue Testing of Auto-FDS



Upcoming Activities

- 2-3 Months
 - Participate in End of Life Plan review(s)
 - End Of Life Plan Testing, and Simulations
 - Continue to close open CCRs, MOCRs, and MSR Action Items